

**METHOD AND APPARATUS FOR GENERATING A  
64 STATE 4-D TRELLIS CODE IN DMT**

**Abstract of the Disclosure:**

A method and apparatus for encoding data bits in DMT modulation system is providing utilizing a 64-state Trellis encoder to achieve further improvement in the achievable coding gain by employing coset partitioning, bit conversion, and constellation encoder that fit the DMT modulation. The coding gain of the new coder is around 5.63 dB, which is about 0.96 dB higher than the current Trellis coder in the DMT standard.